

ENVIRONMENTAL BULLETIN OF KEFALLINIA “ANNA POLLATOU” AIRPORT (EFL)

Reference year 2021

Fraport Regional Airports of Greece A S.A.

Issue year: 2022

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1. INTRODUCTION

1.1. Location

Kefallinia Airport “Anna Pollatou” (EFL) is located in the south part of the island of Kefallinia, south to Argostoli town, at a road distance of approximately 8 km from the center of the town. The airport’s area is approximately 820 acres.

1.2. Administration

The Airport administratively belongs to the Municipal Unit of Argostoli of the Municipality of Kefallinia, in the Regional Unit of Kefallinia, Region of Ionian Islands, the seat of which is in Corfu.

1.3. Environmental licensing

Approved Environmental Terms	
E.T. Decision Reference number	32647/09.05.1995
E.T. Amendment Decision Reference Number	106586/08.08.2006
	24341/19.05.2017
	39772/26.09.2017
	36368/20.12.2017
	85360/3423/07.03.2019

1.4. Airport Basic Data

Airport name IATA / ICAO	EFL / LGKF
Airport location – Airport Reference Point (ARP)	Latitude: 38° 07' 12" N Longitude: 20° 30' 01" E
Altitude	18m
Number of runways	1
Operation hours (summer)	Monday-Wednesday & Friday-Sunday 08:00 – 23:00 Thursday 06:00 – 22:30
Operation hours (winter)	Monday 10:00 – 14:00 Tuesday CLOSED Wednesday 10:00 – 16:30 Thursday/Saturday 09:00 – 17:30 Friday 11:00 – 16:30 Sunday 14:00 – 18:00

Runways	Length/Width					Code
Runway	2,436m x 45 m					14/32
Full length of parallel taxiway	N/A					
Number of taxiways	2					
Apron capacity	A	B	C	D	E	
	-	-	2	1 (MARS)	-	

Employees	High season (31.08.2021)	Low season (30.11.2021)
Fraport Greece (FG) employees	24	21
Employees of other companies	313	184

Terminal	
➤ Total area (m ²)	10.700

Other buildings and service/storage areas	
➤ RFF Station (m ²)	1.172

Parking Areas	
Car parking spaces	165
Bus parking spaces	16
Taxi parking spaces	27

1.5. Airport facilities

1.5.1. Fuel Handlers

Number of fuel handler companies	
Number of fuel handler companies operating at the Airport	2

Installations inside the airport	EKO	GISSCO	HAFCO
Environmental Management System (EMS)	YES	YES	Not operating at the airport

1.5.2. Ground Handlers

Number of ground handler companies	
Number of ground handler companies operating at the Airport	3

Installations inside the airport	SKYSERV	SWISSPORT	GOLDAIR
Environmental Management System (EMS)	YES	YES	YES

2. TRAFFIC DATA STATISTICS

2.1. Annual Traffic Data

Annual Traffic Data for the year 2021	
Overall Annual Air Traffic Movements ¹	4.819
Percent of increase or decrease in relation to the previous year	51.4%
Annual passenger traffic	303.338
Percent of increase or decrease in relation to the previous year	57.6%
Annual cargo transferred (tn)	2
Percent of increase or decrease in relation to the previous year	0%

Aircraft types	
Prevailing aircraft types for domestic flights	
Aircraft type	No. of flights
AT45	458
DH8D	400
AT75	210
AT72	192
AT46	162
AT76	84
EC30	70
A320	58
C72R	15
B9C	14
Other	284
Prevailing aircraft types for international flights	
Aircraft type	No. of flights
B73H	693
A320	462
B738	321
A32A	178
7M8	125
A319	90
A20N	88
C56X	53
GLEK	50
CL60	45
Other	767

¹ Military and training flights not included.

2.2. High season traffic data

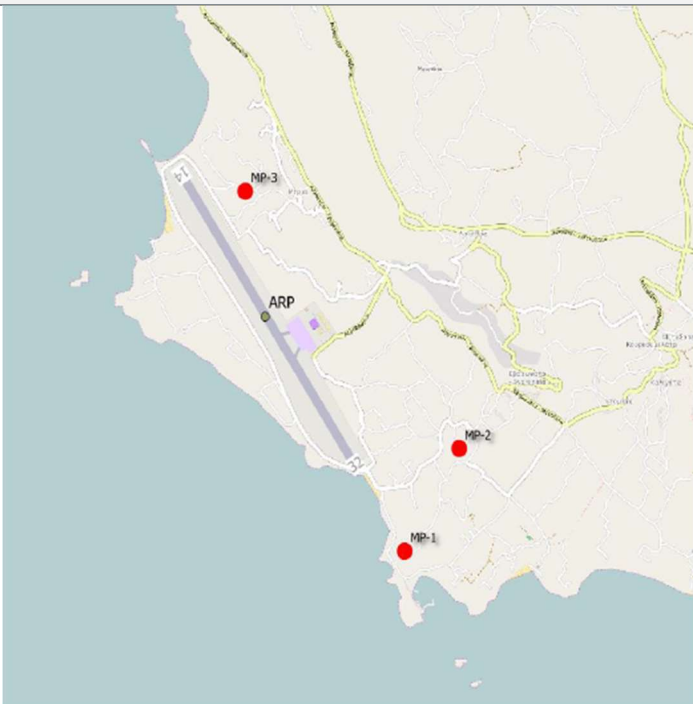
High season traffic data (June-September)	
Highest traffic month	August
Air traffic movements during the month with highest traffic	1.344
Air traffic movements daily average number during the month with highest traffic	43

2.3. Low season traffic data

Low season traffic data (October-May)	
Lowest traffic month	February
Air traffic movements during the month with lowest traffic	88
Air traffic movements daily average number during the month with lowest traffic	3

3. AIRCRAFT NOISE

3.1. Noise measurements during the reference year

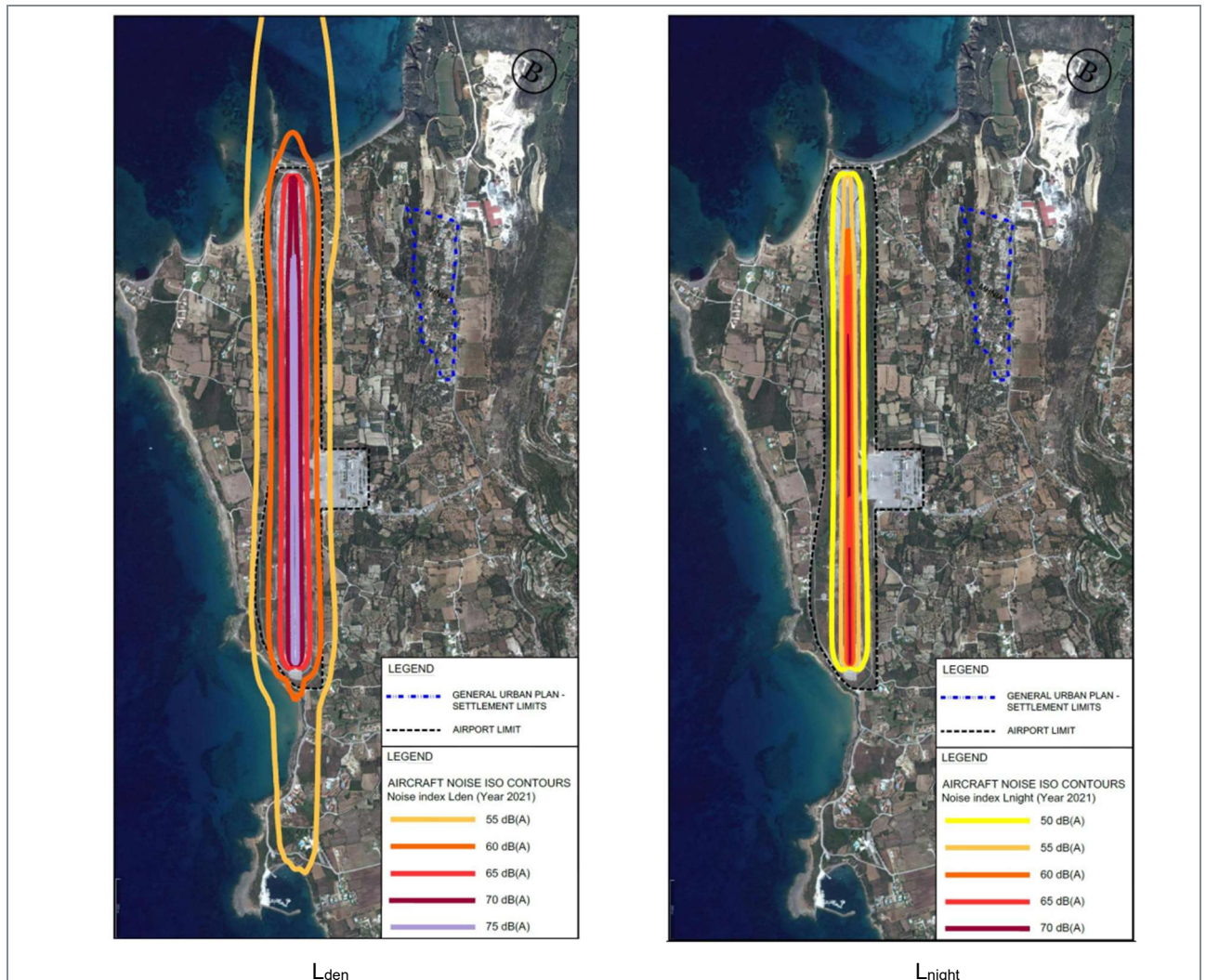
Have noise measurements at the airport's surrounding area been performed during the reference year?		YES
Measurement points		
		
Measurement points coordinates	Measurement points description	
Position 1: 38° 06' 18" N 20° 30' 46" E	Ammes beach area, south of the runway in a hotel garden. Affected by arrivals in runway 32 and departures from runway 14.	
Position 2: 38° 06' 41" N 20° 31' 04" E	Livathou area, south-east of the runway in the garden of a hotel. Affected by arrivals in runway 32 and departures from runway 14	
Position 3: 38° 07' 41" N 20° 29' 56" E	Minies area, to the east of the runway, at the yard of a private house. Affected by arrivals in runway 14 and departures from runway 32.	
Measurement period	24.07.2021 - 25 07.2021	
Noise indicators	L _{den} , L _{night}	

Summary of measurement results:

Noise levels are monitored according to the airport's monitoring program.
No exceedance of the noise indicators levels L_{den} = 70 dB(A) and L_{night} = 60 dB(A) was observed.

3.2. Noise levels calculation based on noise simulation software

Aircraft noise levels calculation based on noise simulation software	YES
Software used: : IMMI Noise Prediction Software (Methodology CNOSSOS-EU according to Directive 2015/996/EU)	
Noise indicators and respective contours calculation: L _{den} , L _{night}	
Noise contours:	



Summary of results:

For the year 2021 no population or buildings within official settlement boundaries were found to be exposed to noise levels higher than the limits $L_{den}=70$ dB(A) and $L_{night}=60$ dB(A).

4. AIR QUALITY

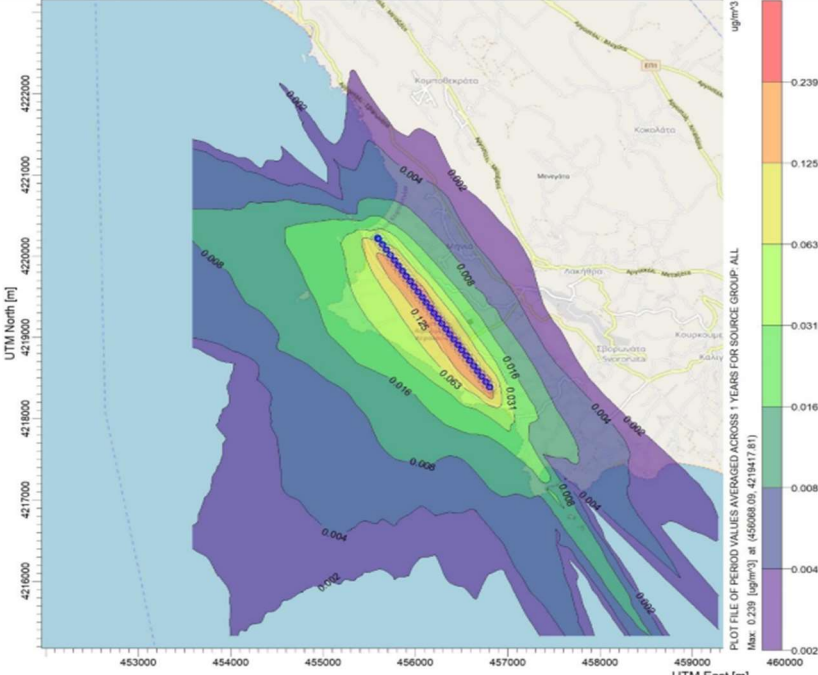
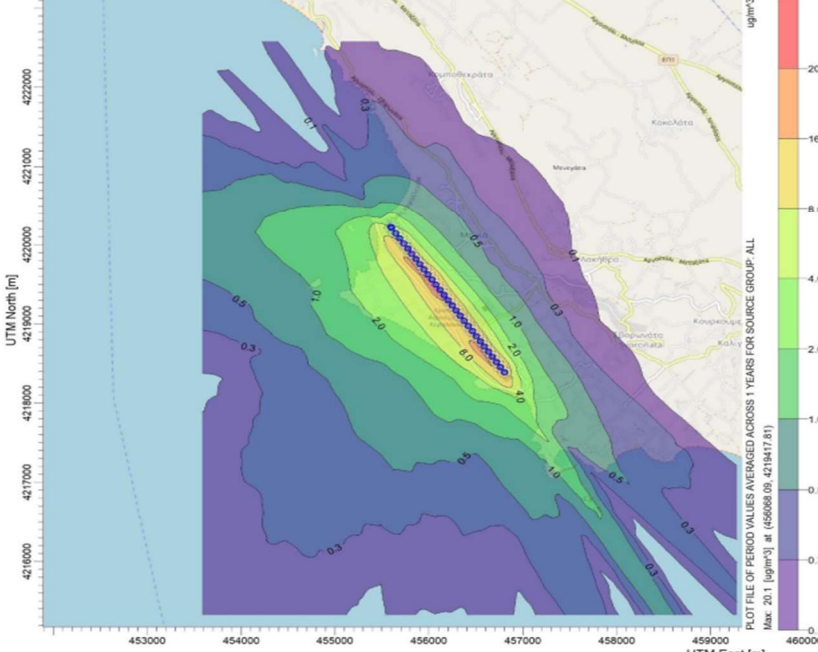
4.1. Air quality measurements during the reference year

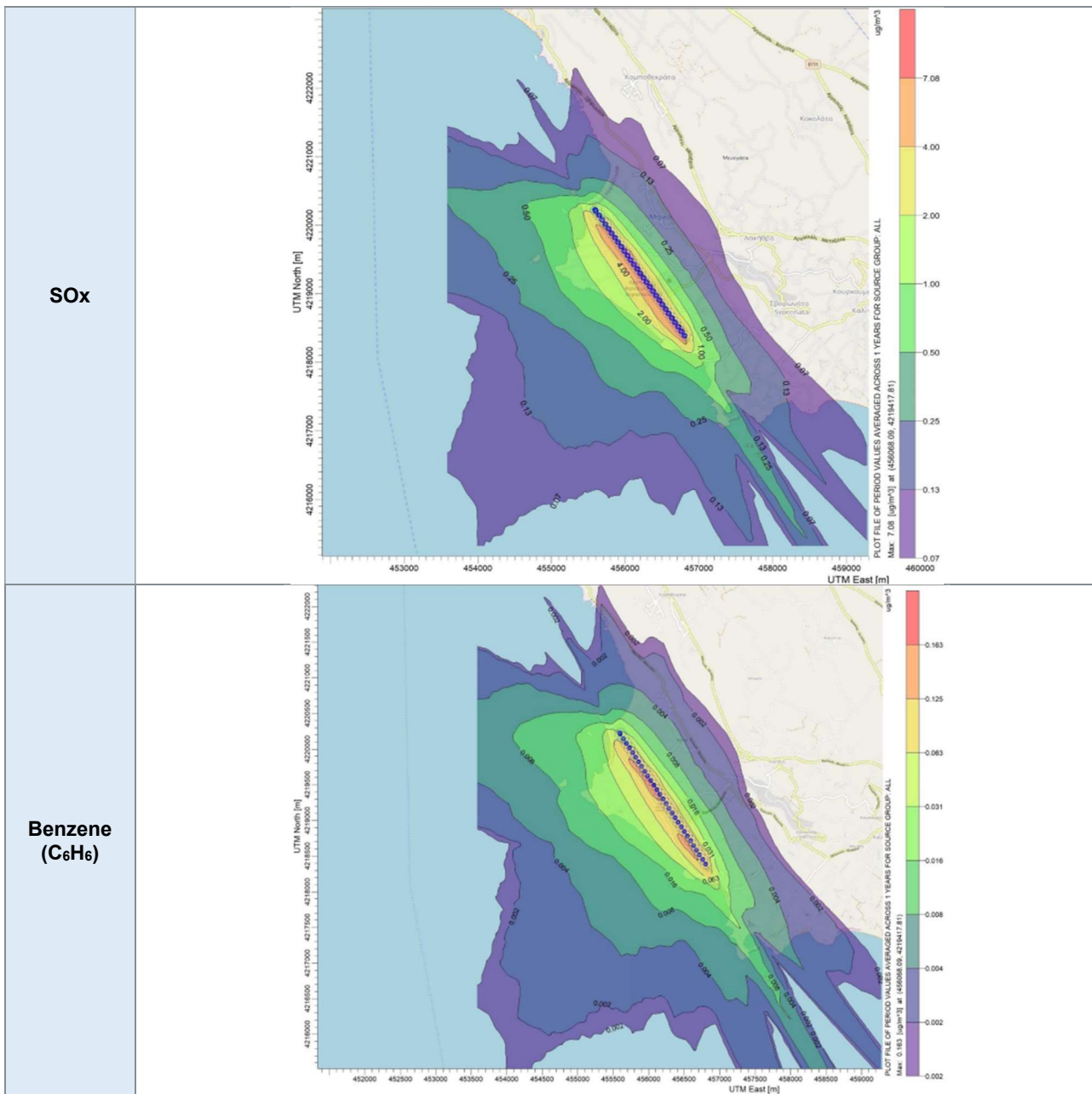
Have air quality measurements at the airport’s surrounding area been performed during the reference year?		YES
Measurement points		
		
Measurement points	Measurement points description	
Position 1	At a distance of approximately 1 km, in the parking area of Pythos Studios & Apartments.	
Position 2	Minia settlement at a distance of approximately 500m from the airport.	
Measurement period:	29.05.2021-14.06.2021	
Pollutants measured:	PM ₁₀ , PM _{2,5} , NO ₂ , SO ₂ , C ₆ H ₆ , O ₃	

Summary of measurement results:

Air quality is monitored according to the airport’s monitoring program. No exceedance of the air quality limits was observed for PM₁₀, PM_{2,5}, NO₂, SO₂ & C₆H₆. It is noted that some individual exceedances for the O₃ pollutant mean values were recorded. As a result of its dependency on the solar radiation, ozone does not show a homogenous trend during the year. Increased ozone concentrations are recorded usually at the end of spring and beginning of summer, especially during the days with high sunlight. Therefore, these momentary exceedances are considered to be individual occurrences not related to the airport’s operation.

4.2. Air pollutants emission and dispersion modelling

Calculation of air pollutants concentrations based on an emission and dispersion modelling software		YES
Software used: Aviation Environmental Design Tool (AEDT) - US Federal Aviation Administration & US Environmental Protection Agency AERMOD		
Pollutants concentrations and respective contours calculation: PM ₁₀ , NO _x , SO _x , C ₆ H ₆		
PM₁₀		
NO_x		



Summary of results:

Air quality is monitored according to the airport’s monitoring program.
No exceedance of the air quality limits was observed.

5. WASTE MANAGEMENT

Waste	Collection	Management/Disposal
Recyclables (paper, plastic, metals, glass)	Separate collection by Kefallinia solid waste management body (EDAKI AE OTA)	Transport to Kefallinia landfill and transshipment for recycling
Residues (Mixed Waste) and Bulky Waste	Collection by Kefallinia solid waste management body (EDAKI AE OTA)	Disposal at mechanical recycling-composting facility of Kefallinia or Kefallinia landfill for material recovery or final disposal respectively.

Notes:

- Regarding the different categories of the MSW (recyclables, mixed waste, bulky waste), the Airport Users handle their waste together with Fraport Greece A in most cases (central management), while in a few other cases they handled them autonomously. The implementation of a fully central system by Fraport Greece A is expected.
- Regarding the “alternative management” waste categories (Waste lubricant oil WLO, WEEE, etc.):
 - Waste Lubricant Oil (WLO): Collection and management by authorized collector “CYTOP S.A.”
 - Waste Electrical & Electronic Equipment (WEEE): Collection and management by alternative management system “Appliances Recycling S.A.”
 - Accumulators: Collection and management by alternative management system “Re-Battery S.A.”
 - Small batteries: Collection and management by alternative management system “AFIS S.A.”
 - Used tires: Collection and management by alternative management system “ECOELASTIKA S.A.”
- The total quantities of the hazardous waste further to the above-mentioned and produced at the airport, are managed by licensed private companies which have a contract with Fraport Greece A, according to the provisions of the legislation in force.
- The total quantities of the produced waste by category resulting from all activities of the airport, the collectors and final recipients, are recorded by Fraport Greece A and submitted in the Electronic Waste Registry of the Ministry for Environment and Energy via the Annual Waste Producer Report according to the provisions of the legislation in force.

6. ECOSYSTEM AROUND THE AIRPORT

6.1. Flora-Fauna

Flora	
Are there protected zones of vegetation/habitats in the broader airport area?	YES
<p>(if YES) Short description: Kefallinia airport is located outside protected areas as per L. 3937/2011. However, its south part is adjacent to the coastal Special Area of Conservation (SAC) GR2220004 “Coastal marine zone from Argostoli to Vlachata (Kefalonia) and Mounda bay” of the Natura 2000 network.</p>	
Fauna	
Are there protected species of fauna/birds in the broader airport area?	YES
<p>(if YES) Short description: Kefallinia airport is adjacent to the coastal Special Area of Conservation (SAC) GR2220004 “Coastal marine zone from Argostoli to Vlachata (Kefalonia) and Mounda bay” of the Natura 2000 network, where individuals of monk seal, of a dolphin species and of the <i>Caretta caretta</i> turtle are found.</p> <p>The protected bird species that have been observed at Kefallinia airport since April 2017 are presented below:</p> <p><i>European roller (Coracias garrulous), Great egret (Casmerodius albus), Marsh harrier (Circus aeruginosus), Montagu’s harrier (Circus pygargus), Red-footed falcon (Falco vespertinus), Purple heron (Ardea purpurea), Shelduck (Tadorna tadorna)</i></p>	

6.2. Ecologically fragile areas

Kefallinia airport is adjacent to the coastal Special Area of Conservation (SAC) GR2220004 “Coastal marine zone from Argostoli to Vlachata (Kefalonia) and Mounda bay” of the Natura 2000 network.

7. WILDLIFE HAZARD MANAGEMENT

Wildlife strikes and wildlife hazard management measures	
Wildlife species that suffered a strike	Strikes (%)
Little owl (<i>Athene noctua</i>)	67%
Barn swallow (<i>Hirundo rustica</i>)	33%
Wildlife strike risk mitigation measures:	
<ul style="list-style-type: none"> • Inspections of the manoeuvring area for wildlife monitoring and control at regular intervals • Drainage ditches are regularly monitored and when necessary cleaned, to ensure efficient water run-off and, thus, reducing the attractiveness of the airside to the wildlife • Regular grass cutting at the airside. Kefallinia Airport is equipped with tractor. • Fence maintenance • Systematic monitoring of bird species populations and their habitat on and off-airport (at a distance of 13km from the airport) • Holding of the wildlife strike committee meeting, to raise awareness across the airport users and local authorities about the risk of the wildlife strikes on aircraft and the measures applied to mitigate such a risk 	
Reference year summary results:	
<p>Hellenic Civil Aviation Authority (Safety and occurrence management division) receives annual reports referring to the risk assessment of the wildlife hazard as well as to the wildlife hazard management at the 12 regional airports operating by Fraport Greece. Aktion Airport and Chania Airport “Ioannis Daskalogiannis” are excluded, in accordance with the Concession Agreement, Annex 20, paragraph 6.3.3 & 6.3.4.</p>	

8. CULTURAL HERITAGE

Have new cultural heritage properties been discovered during the reporting period?	NO
<i>(if YES)</i> Details provided in the table below:	

Location	Date of discovery	Type of discovery	Additional protection measures taken

9. RESOURCES CONSUMPTION

9.1. Energy consumption

Energy consumption (monthly electric energy consumption, in Kwh)	
Total annual electric energy consumption (in Kwh)	1.321.260

9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	8	
Number of firefighting vehicles at the airport	3	
Total annual fuel consumption	Diesel (lt)	8.499,29
	Unleaded gasoline (lt)	393,4

9.3. Heating oil or natural gas consumption

Heating oil or natural gas consumption	
Total annual heating oil consumption (lt)	-*
Total annual heating natural gas consumption (m ³)	N/A

**Heating and air conditioning is performed via heat pumps*

9.4. Fuel consumption for generator

Water consumption	
Total annual consumption (lt)	4.015

9.5. Water consumption

Water consumption	
Total annual consumption (m ³)	12.001

10. GREENHOUSE GAS EMISSIONS & CARBON FOOTPRINT

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO₂ emissions included in scope 1 & 2 of the GHG protocol:

- Scope 1: Direct GHG emissions that occur from sources that are owned and/or controlled by the airport,
- Scope 2: Indirect GHG emissions from the generation of purchased electricity, steam, heat or cooling consumed by the airport.

Source Flows	Total CO ₂ Emissions (t)
	2021
Direct emissions form heating fuel (scope 1)	0,0
Direct emissions from fuel used for fleet vehicles (scope 1)	14,2
Direct emissions from fuel used for firefighting vehicles (scope 1)	9,4
Direct emissions from fuel used for generators (scope 1)	10,7
Indirect emissions from refrigerants (scope 1)	-
Indirect emissions from electricity consumption (scope 2)	796,4
Total (t)	830,7
Kg CO₂ /passenger	2,74

Notes:

Fraport Greece A is committed to the monitoring, management and reduction of its airports carbon footprint. In order for this target to be achieved:

- Direct and indirect carbon emissions from all the emission sources in the airports' boundaries are calculated and reported, based on the GHG Protocol (scope 1 & 2)
- The airport was during the year 2020 certified according to ACA (Airport Carbon Accreditation)

11. HUMAN CONSUMPTION WATER MONITORING PROGRAM

Human consumption water quality	
Water supply (public water network or airport's boreholes)	Municipal Water & Sewage Company (DEYA) of Kefallinia
Is sampling of the airport's water network performed?	YES
<i>(if YES)</i> Sampling frequency:	Quarterly
<p>Summary of results: The results of the microbiological and chemical analyses show that the parameters analyzed as regards the airport's water network are <u>within the legislative limits</u> defined by the Ministerial Decision Γ1 (δ)/ΓΠ οικ. 67322/ GG 3282 B/19-9-2017 regarding the quality of human consumption water.</p>	

12. RAINWATER

RAINWATER (collection, treatment disposal and recipient)		
Area	Collection/treatment/disposal	[YES/NO]
Apron and manoeuvring area	Collected in drainage ditches leading to the sea	YES
Other runoffs (runway etc.)	Collected in drainage ditches leading to the sea	YES
Treatment of rainwater by oil-separator		NO

Rainwater quality	
Is sampling of the airport's rainwater performed?	YES
(if YES) Sampling frequency:	Yearly
Parameters analyzed: pH, conductivity, TSS, DO, NO ₃ , NO ₂ , Oil & grease, BOD, COD, Total Petroleum Hydrocarbons (TPH), PAHs, BTEX, Heavy metals, PCBs, Detergents	
Summary of results:	
Surface rainwater quality is monitored according to the airport's monitoring program. Due to the absence of designated recipients and relevant national quality limits for surface rainwater, the Environmental Health & Safety Guidelines of the International Finance Corporation (IFC) are adopted. According to FG's analyses results and based on the abovementioned specifications, the airport's rainwater environmental condition is adequate and no further treatment measure is necessary.	

13. GROUNDWATER AND/OR SOIL AND/OR SOIL GAS MONITORING

Groundwater and/or soil and/or soil gas quality	
Is sampling of the airport’s groundwater and/or soil and/or soil gas performed?	YES
(if YES) Sampling frequency:	According to the Environmental Terms
Parameters analyzed: TPH, BTEX, MTBE (groundwater) & volatile hydrocarbons, aliphatic, aromatic and chlorinated (soil gas)	
Summary of results:	
<p>Groundwater quality is monitored according to the airport’s monitoring program. In addition, the fuel handling companies monitor the quality of groundwater according to the environmental terms. According to the environmental monitoring reports of the fuel handlers, and based on the New Dutch List (2013) which is adopted in the absence of relevant national specifications/limits, the environmental condition of the ground water & soil gas is found adequate and no decontamination measures are necessary. Regarding soil gas the Directive of the Munich Environmental Protection Department in force by 10.02.1998, which is the most widely accepted, is adopted as a basis for comparison. Similarly, the qualitative condition of the surface soil is satisfactory.</p>	

14. SEWAGE TREATMENT AND DISPOSAL

Sewage	
Sewage network to the municipal waste water treatment plant (WWTP)	NO
Autonomous airport’s waste water treatment plant (WWTP)	YES*

Blue water
Collection and disposal: Collection in watertight tank and disposal to the municipal sewage network.

Waste water treatment plant description (where applicable) <i>Description of characteristics and condition of the airport’s WWTP including possible problems. Type and frequency of the effluent quality measurements.</i>	
Degree of treatment of airport’s WWTP	Tertiary treatment & chlorination
Treatment method	Membrane bioreactors
Disposal of treated wastewater	Reuse via an aquifer recharge field with the method of soil infiltration
Sludge disposal	Landfill
Sampling frequency of WWTP effluent	According to Table 3 of the Annex of JMD 145116/2001
Parameters analyzed	BOD5, SS, TN, TP, T. Coliforms, Turbidity, NH ₄ , pH, residual Cl ₂
Summary of quality of WWTP effluent	Limits for aquifer recharge as set in Table 3 of the Annex of JMD 145116/2001 according to the Environmental Terms Approval Decision no. 85360/3423/07.03.2019

*The data above refer to the new WWTP constructed in the context of the Imminent Works. Since December 2020, sewage transported to the local WWTP via tank trucks due to the fact that, the incoming sewage load was not sufficient in order for the installation to achieve the effluent limits for reuse.